Course Description

A text is more than a sequence of sentences. For understanding a text, the reader needs to infer semantic and pragmatic relations between the sentences. In Computational Linguistics methods have been developed for capturing the specific character of text: models of local and global coherence, coreference resolution algorithms, theories describing the rhetorical, temporal, causal, and argumentative structure of text. In the class, first a few classical papers dealing with these topics will be discussed. Then we will learn about current models, methods and algorithms. However, their benefit over simpler approaches can only be evaluated within NLP applications. Therefore, the class will also cover the evaluation of discourse processing methods in applications such as information extraction, question answering, automatic summarization, sentiment analysis, etc.

Textbooks

- selected chapters from:

References


Grading

- weekly: 2 questions submitted to instructor and participation in discussion (1/3)
- once: paper presentation (Referat, 1/3)
- once: essay (Hausarbeit, at most 15 pages) or programming project (demo/executable code and short (5 pages) description) (1/3) – Deadline: 2013/03/07
Schedule

2012/10/25
Introduction, Overview about schedule, assignments, grading …
(Stede, 2012; Webber et al., 2012; Webber & Joshi, 2012)

2012/11/08
Discourse structure
(Grosz & Sidner, 1986; Morris & Hirst, 1991; Passonneau & Litman, 1997)

Document structure in different genres
(Teufel & Moens, 2002; Power et al., 2003; Sporleder & Lapata, 2004; Filippova & Strube, 2006; Chung, 2009; Teufel et al., 2009; Liakata et al., 2010)
to be read: (Webber & Joshi, 2012)

2012/11/15
Introduction to local coherence analysis: Information Status, Coreference
Presenter: Michael Strube: (Hobbs, 1978)
Presenter: Lyubov Nakryyko: (Lappin & Leass, 1994; Kennedy & Boguraev, 1996)
to be read: (Hobbs, 1978) or (Lappin & Leass, 1994)

2012/11/22
Introduction to centering
Presenter: Michael Strube: (Brennan et al., 1987; Grosz et al., 1995; Poesio et al., 2004)

Introduction to global coherence analysis
Presenter: Mareike Hartmann: (Kehler et al., 2008)
to be read: (Hobbs, 1979) or (Hobbs, 1985) or (Grosz et al., 1995)
optional: (Prince, 1981; Grosz & Sidner, 1986; Mann & Thompson, 1988; Prince, 1992; Knott & Dale, 1994; Strube, 1998; Webber & Joshi, 1998; Strube & Hahn, 1999; Webber et al., 2012)

2012/11/29
Topic segmentation: Distributional approaches
Presenters: Chen Li (Beeferman et al., 1999), Danny Rehl (Pevzner & Hearst, 2002)
optional: (Reynar, 1999; Choi, 2000; Pevzner & Hearst, 2002)
to be read: (Hearst, 1997)

2012/12/06
Topic segmentation: Lexical chains
Presenters: Joachim Bingel (Ye & Chua, 2006; Ye et al., 2007), Martina Lindahl
optional: (Morris & Hirst, 1991; Barzilay & Elhadad, 1997; Hirst & St-Onge, 1998;
Barzilay & Elhadad, 1999; Silber & McCoy, 2002; Stokes et al., 2004; Medelyan,
2007)

**to be read:** (Barzilay & Elhadad, 1999)

2012/12/13
**Probabilistic models for topic segmentation**
**Presenter:** Hans-Martín Ramsl: (Utiyama & Isahara, 2001; Eisenstein & Barzilay,
2008)
**optional:** (Shafiei & Milios, 2008; Chen et al., 2009)

**Hierarchical topic segmentation**
**Presenter:** Sokchea Kor: (Hsueh et al., 2006)
**optional:** (Grosz & Sidner, 1986; Eisenstein, 2009)

**to be read:** (Utiyama & Isahara, 2001) or (Hsueh et al., 2006)

2012/12/20
**Segmentation applications: Summarization**
**Presenter:** Annika Berger: (Stokes et al., 2004)
**optional:** (Goldstein et al., 2000; Teufel & Moens, 2002; Narayanan & Harabagiu,
2004)

**Local coherence applications: Readability**
**Presenter:** Thomas Bögel: (Higgins et al., 2004; Heilman et al., 2007)
**optional:** (Miltsakaki & Kukich, 2000; 2004; Schwarm & Ostendorf, 2005; Miltsakaki
& Troutt, 2008)

**to be read:** (Stokes et al., 2004) or (Higgins et al., 2004) or (Heilman et al., 2007)

2013/01/10
**Local coherence: Entity grid with applications to readability, summary coherence rating**
**Presenter:** Christoph Mayer: (Barzilay & Lapata, 2008; Elsner & Charniak, 2011)
**optional:** (Elsner et al., 2007; Filippova & Strube, 2007)

**Local coherence applications: Information ordering**
**Presenter:** Frank Marczewski: (Barzilay & Lapata, 2008; Karamanis et al., 2009)
**optional:** (Karamanis, 2007)

**to be read:** (Barzilay & Lapata, 2005) or (Karamanis et al., 2004)

2013/01/17
**Local coherence: Information status**
**Presenter:** Sariya Karimova: (Nissim et al., 2004; Nissim, 2006; Rahman & Ng,
Local coherence: Fine-grained Information status  
**Presenter: Yufang Hou:** (Markert et al., 2012)

**optional:** (Cahill & Riester, 2009; Riester et al., 2010; Riester & Baumann, 2011)

**to be read:** (Nissim, 2006)

2013/01/24  
**Local coherence: Machine learning for coreference resolution**  
**Presenter: Yulia Pilkevich Michael Strube**  
(Soon et al., 2001; Ng & Cardie, 2002; Luo et al., 2004; Nicolae & Nicolae, 2006; Yang et al., 2008a; 2008b; Ng, 2008; 2010)

**Local coherence: Recent work on coreference resolution**  
**Presenter: Carolin Haas** (Raghunathan et al., 2010; Lee et al., 2011)

**optional:** (Denis & Baldridge, 2007; Klenner, 2007; Finkel & Manning, 2008; Poon & Domingos, 2008; Denis & Baldridge, 2009; Sapena et al., 2010; Cai & Strube, 2010; Rahman & Ng, 2011b)

**to be read:** (Soon et al., 2001) or (Ng, 2010)

2013/01/31  
**Local coherence applications: Coreference and summarization, QA**  
**Presenter: Magnus Bodén:** (Vicedo & Ferrández, 2006)

**optional:** (Azzam et al., 1999; Boguraev & Kennedy, 1999; Morton, 2000; Stuckhardt, 2003; Watson et al., 2003; Steinberger et al., 2005; 2007)

**Global coherence: Rhetorical Structure Theory (RST)**  
**Presenter: Huiqin Körkel-Qu:** (Feng & Hirst, 2012)

**optional:** (Marcu & Echihabi, 2002; Carlson et al., 2003; Soricut & Marcu, 2003; Subba & Di Eugenio, 2009; Hernault et al., 2012)

**to be read:** (Vicedo & Ferrández, 2006) or (Feng & Hirst, 2012)

2013/02/07  
**Global coherence: Penn Discourse Treebank (PDTB)**  
**Presenter: Angela Schneider/Eric Hildebrand:** Intro to PDTB and (Pitler & Nenkova, 2009b)

**optional:** (Pitler & Nenkova, 2009a; Ghosh et al., 2012; Lin et al., 2012)

**ALL:** Discussion about properties of discourse structure (segments, local and global coherence), multilinguality, applications, future directions, ...
to be read: (Prasad et al., 2008) – send me one question about this paper and two questions about issues/topics from the whole term you want to discuss.

Optional:
Global coherence: Applications
(Marcu, 1997; Maslennikov & Chua, 2007; Clarke & Lapata, 2010; Zirn et al., 2011)

Notes
The questions about the material to be read will be part of the grading. Please send me your questions via email until 1 pm on the day of the class.
Attendance in class will be checked. If you really cannot attend one class, let me know beforehand via email and produce a (doctor’s) certificate afterwards. The Hausarbeit should be at most 15 pages including references. It can be written in German or English. Please submit a PDF-file as I don’t have Microsoft software and cannot guarantee that I can read and print Microsoft Word generated files correctly. Please don’t forget to put your name and Matrikelnummer on the front page.

Literature: Most of the literature cited can be accessed via the ACL anthology (http://www.aclweb.org/anthology/), in particular all papers which appeared in the *Computational Linguistics Journal*, the (E/NA)ACL, IJCNLP, and EMNLP conferences. Many other journals are available electronically through the university library (UB).

References


Galley, Michel, Kathleen R. McKeown, Eric Fosler-Lussier & Hongyan Jing (2003). Discourse


